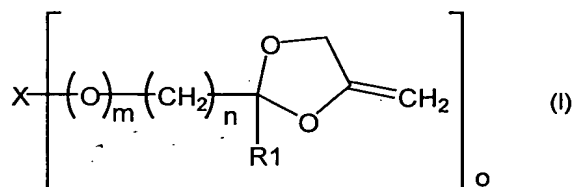


WHAT IS CLAIMED IS:

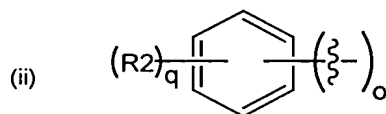
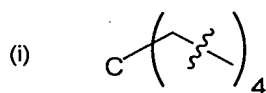
1. A 4-methylene-1,3-dioxolane compound of the general formula (I):



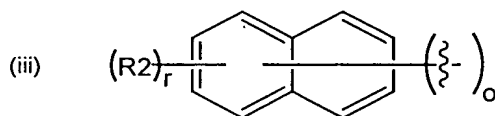
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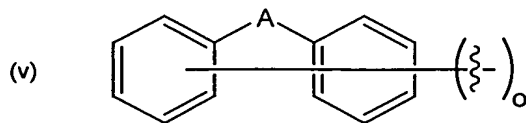
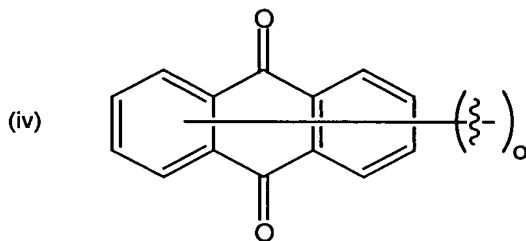
wherein R1 denotes hydrogen, C<sub>5</sub>-C<sub>6</sub>-cycloalkyl or C<sub>1</sub>-C<sub>4</sub>-alkyl; m and n, which may be the same or different, denote 0 or 1, wherein m ≤ n, o denotes 2, 3 or 4 depending on the valency of the group X; and X denotes a C-C single bond, straight-chain or branched C<sub>1</sub>-C<sub>18</sub>-alkylene, C<sub>5</sub>-C<sub>6</sub>-cycloalkylene, C<sub>8</sub>-C<sub>18</sub>-arylalkylene, -CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>p</sub>OCH<sub>2</sub>-, -CH<sub>2</sub>(OCH(CH<sub>3</sub>)CH<sub>2</sub>)<sub>p</sub>OCH<sub>2</sub>-, wherein p is an integer from 0 to 100, or a group selected from

10



15





wherein  $q \leq (6-o)$ ,  $r \leq (8-o)$ , R2 denotes H or a C<sub>1</sub>-C<sub>4</sub>-alkyl group and A denotes a single bond or denotes -C(CH<sub>3</sub>)<sub>2</sub>-, -C(CF<sub>3</sub>)<sub>2</sub>-, -CH<sub>2</sub>-, -SO<sub>2</sub>- or -(C=O)-, and wherein the 2-position of the 1,3-dioxolane ring is not linked directly to an aromatic group.

2. The 4-methylene-1,3-dioxolane compound according to claim 1, selected from the group consisting of:

1,3-Bis-(4-methylene-1,3-dioxolane-2-yl)propane,

1,2-bis-(2-methyl-4-methylene-1,3-dioxolane-2-yl)ethane,

2,2'-bis-[4-methylene oxyphenyl-(4-methylene-1,3-dioxolane-2-yl)]propane,

bis-(4-methylene-1,3-dioxolane-2-yl)methane,

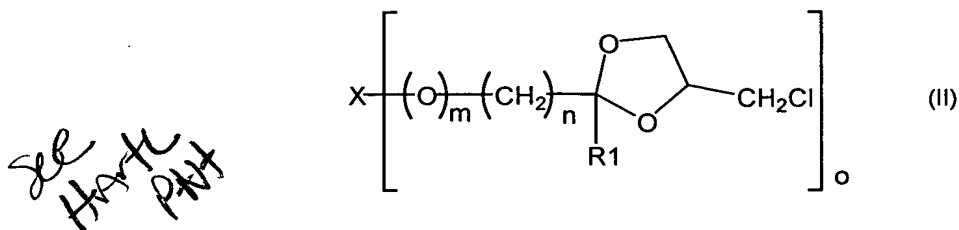
1,5-bis-(4-methylene-1,3-dioxolane-2-yl)pentane,

1,6-bis-(4-methylene-1,3-dioxolane-2-yl)hexane,

bis-(4-methylene-1,3-dioxolane-2-yl)methylether,



3. A 4-chloromethyl-1,3-dioxolane compound of the general formula (II):



wherein R1, m, n, o and X have the same meanings as those defined for general formula (I) in claim 1, respectively.

4. The 4-chloromethyl-1,3-dioxolane according to claim 3, selected from the group consisting of:

- 1,3-bis-(4-chloromethyl-1,3-dioxolane-2-yl)propane,
- 1,2-bis-(2-methyl-4-chloromethyl-1,3-dioxolane-2-yl)ethane,
- 2,2'-bis-[4-methylene oxyphenyl-(4-chloromethyl-1,3-dioxolane-2-yl)]propane,
- bis-(4-chloromethyl-1,3-dioxolane-2-yl)methane,
- 1,5-bis-(4-chloromethyl-1,3-dioxolane-2-yl)pentane,
- 1,6-bis-(4-chloromethyl-1,3-dioxolane-2-yl)hexane,
- bis-(4-chloromethyl-1,3-dioxolane-2-yl)methylether,
- 1,3-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]propane,
- tetrakis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene oxy]neopentane,
- 1,4-bis-(4-chloromethyl-1,3-dioxolane-2-yl)cyclohexane,

1,2-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene  
oxy]ethane,

2,2'-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methyl-  
ene oxy]ethylether,

1,4-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)ethenyl]-  
benzene,

1,3-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene  
oxy]benzene,

1,5-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene  
oxy]naphthalene,

2,2-bis-[4-(4-chloromethyl-1,3-dioxolane-2-yl)methyl-  
ene oxyphenyl]propane,

bis-[4-(4-chloromethyl-1,3-dioxolane-2-yl)methylene  
oxyphenyl]methane,

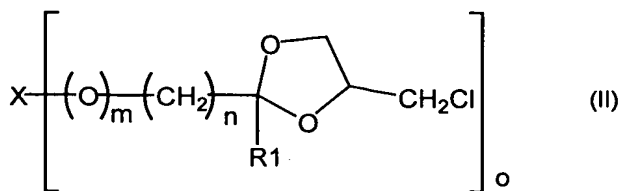
15 4,4'-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methyl-  
ene oxy]biphenyl,

2,6-bis-[(4-chloromethyl-1,3-dioxolane-2-yl)methylene  
oxy]anthraquinone, and

1,3,5-tris-[(4-chloromethyl-1,3-dioxolane-2-  
yl)methylene oxy]benzene.

5. A process for the production of a 4-methylene-1,3-dioxolane compound as recited in claim 1, comprising the steps of:

25        treating a 4-chloromethyl-1,3-dioxolane compound of  
the general formula (II):



wherein R1, m, n, o and X have the same meanings as those defined for general formula (I) in claim 1, respectively, with a base at a temperature from 0°C to 150°C to obtain a  
5 reaction product; and

isolating the reaction product in accordance with a per se known process.

6. The process according to claim 5, wherein it is  
10 implemented at a temperature from 15°C to 60°C.

7. The process according to claim 5, wherein the treatment is implemented in the presence of a solvent.

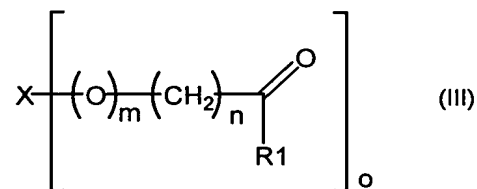
15 8. The process according to claim 7, wherein the solvent is a good solvent for the base.

9. The process according to one of claims 5 to 8, wherein the base is potassium-*tert.*-butylate.

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10. A process for the production of a 4-chloromethyl-1,3-dioxolane compound as recited in claim 3, comprising the steps of:

reacting a compound of the general formula (III):



wherein R1, m, n, o and X have the same meanings as those defined for general formula (II) in claim 3, respectively,  
5 with 3-chloro-1,2-propanediol; and

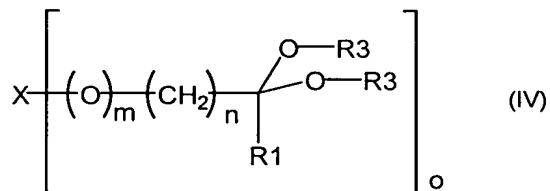
removing the resulting reaction water by distillation.

11. The process according to claim 10, wherein it is  
10 carried out in the presence of a catalyst.

12. The process according to claim 10 or 11, wherein an entrainer is used.

15 13. A process for the production of a 4-chloromethyl-1,3-dioxolanes as recited in claim 3, comprising the steps of:

treating an acetal of the general formula (IV):



wherein R1, m, n, o and X have the same meanings as those defined for general formula (II) in claim 3, respectively, and R3 denotes a methyl or ethyl group, with 3-chloro-1,2-propanediol in the presence of an acidic catalyst at a  
5 temperature from 25°C to 150°C; and  
removing the resulting alcohol by distillation.

14. A composition capable of emission-free,  
photocationic cross-linking comprising at least one 4-  
10 methylene-1,3-dioxolane compound according to claim 1 and  
at least one photo-initiator.

15. The composition according to claim 14, wherein  
the photo-initiator comprises a triaryl sulfonium salt or  
15 a diaryl iodonium salt.

16. A transparent film obtained from a composition  
according to claim 14 or 15.

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